The Missing Tracheo-Esophageal Puncture Prosthesis: Evaluation and Management

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INTRODUCTION

The placement of a voice prosthesis in the post-laryngectomy patient has provided significant improvement in voice rehabilitation and broadened the available methods of speech to include tracheoesophageal, esophageal, and electrolaryngeal speech. The voice prosthesis was first introduced in 1980 by Singer and Blom and allowed for the creation of novel voice prostheses in more recent years. The Provox prosthesis was first developed in 1988 at the Netherlands Cancer Institute. This prosthesis was an important complication. Prompt replacement is necessary to ensure the tract remains patent, and to prevent aspiration of secretions into the stoma. A recent report described a patient with a dislodged prosthesis who presented to the emergency room, and ultimately required repeat puncture under general anesthesia secondary to the prosthesis not being replaced in a timely fashion.

As the use of the voice prosthesis has become more widespread, potential adverse events related to its placement have become more evident. Complications remain rare, however, and can be divided into those occurring early (in the first week) and late (after the first week.) Early complications include bleeding, edema, infection, abscess formation, mediastinitis, salivary and food leakage around the catheter or prosthesis, and prosthetic extrusion. Late complications include prolapse of esophageal mucosa and granuloma formation, fungal infection of the prosthesis, salivary leakage around the valve, puncture site migration, and aspiration of the prosthesis. Given this risk of aspiration, the missing voice prosthesis therefore represents a rare but significant event for the patient having undergone surgical voice restoration.

CASE REPORT

A 61 year old man with a history of laryngeal squamous cell carcinoma was initially treated with chemotherapy and radiation therapy, and obtained a full response. Follow-up examination then revealed a mass in the subglottis, found on biopsy to be recurrence of squamous cell carcinoma. He underwent salvage total laryngectomy with bilateral modified radical neck dissections, thyroid lobectomy, and primary tracheoesophageal puncture (TEP) with placement of a Blom-Singer prosthesis.

He presented to the Emergency Department eight months later complaining of fluid draining into his stoma. Examination revealed that his prosthesis was no longer in place and saliva was draining through the previous TEP site at the posterior wall of the stoma. There was no evidence of infection at the site. The patient had no recollection of the TEP prosthesis (TEPP) falling out, and could not determine whether it had been coughed out, aspirated, or swallowed. He denied any dyspnea or foreign body sensation in his neck or chest.

To ensure that aspiration of the prosthesis had not taken place, a chest x-ray (CXR) was performed. This showed no evidence of a foreign body or aspiration pneumonia; however, a pulmonary nodule was incidentally noted in the left lung. To further evaluate this finding, a computed tomography (CT) scan of the chest was then performed. This revealed the chest to be without evidence of disease, but clearly visualized was the prosthesis in the patient’s stomach (Figure 1). This scan likewise demonstrated the absence of the prosthesis in the expected cervical location (Figure 2). Given this finding, it was apparent that the prosthesis had been swallowed, and not aspirated. A new Blom-Singer prosthesis was placed into the TEP site, and the patient was discharged to home. He has been followed for three years since the TEP dislodgement, and he has had no further issue to suggest an incompetence of the fistulous tract.

IMAGING

Figure 1: Axial CT with contrast, showing TEP within the stomach

Figure 2: Axial CT with contrast, showing the tracheoesophageal puncture site (arrow)

REFERENCES


CONCLUSIONS

• The patient with the missing TEPP should be managed with a through evaluation of the tracheobronchial tree with CXR and possible endoscopic evaluation.
• Once the pulmonary system is cleared, a new prosthesis or catheter should be placed in the tract to avoid aspiration.
• Prostheses presumed or identified to be in the GI tract (as in this case) can be allowed to pass without further intervention.